

CLAIMS

1. A communication quality judging device comprising:

5 a symbol judging means for obtaining a baseband signal representative of a sequence of multilevel symbols and judging the symbol represented by the baseband signal; and

10 10 a communication quality judging means for judging communication quality of a transmission channel over which the baseband signal has been transmitted, based on content of the symbol judged by the symbol judging means,

15 wherein at least a portion of a bit string is distinguished as a protected portion, the bit string constituting data to be transmitted represented by the sequence of symbols, and at least a portion of the symbol that belongs to the sequence of symbols contains a bit belonging to the protected portion and 20 a redundant bit having a predetermined value, and

wherein the communication quality judging means identifies the number of redundant bits having the predetermined value or the number of redundant bits missing the predetermined value among the redundant 25 bits contained in the symbol that contains a bit belonging to the protected portion, and judges the communication quality of the transmission channel based on the identified result.

30 2. The communication quality judging device

according to claim 1, further comprises a data changing means for, if the communication quality judged by the communication quality judging means does not satisfy a predetermined condition, making a 5 predetermined change to the data to be transmitted represented by the symbol used in the judgment.

3. The communication quality judging device according to claim 2, wherein the data changing means 10 comprises means for externally obtaining a parameter that defines at least a portion of the condition.

4. The communication quality judging device according to claim 2 or 3, wherein the predetermined 15 change includes a process of substantially destroying the data to be transmitted represented by the symbol used to judge that the communication quality does not satisfy a predetermined condition.

20 5. The communication quality judging device according to any one of claims 2 to 4, wherein the predetermined change includes a process of replacing the data to be transmitted represented by the symbol used to judge that the communication quality does not 25 satisfy a predetermined condition, with previous data represented by a symbol previously obtained by the symbol judging means.

30 6. The communication quality judging device according to claim 5, wherein the predetermined change

further includes a process of substantially destroying the data to be transmitted that follows last replaced data and that is represented by the symbol used to judge that the communication quality does not satisfy 5 a predetermined condition, when more than a predetermined number of replaced data continues.

7. The communication quality judging device according to any one of claims 2 to 4, wherein the 10 data to be transmitted is composed of data representative of strength of a variable, and

the predetermined change includes an attenuating process of changing the data to be transmitted represented by the symbol used to judge that the 15 communication quality does not satisfy a predetermined condition, to a data equivalent in which the variable represented by the data is attenuated.

8. The communication quality judging device 20 according to claim 7, wherein, when first data, which is transmitted immediately before second data to be subjected to the attenuating process, has been subjected to the attenuating process, the attenuating process provided to the second data consists of a 25 process of changing the second data to a data equivalent in which the variable represented by the second data is attenuated at an attenuation ratio larger than that for the variable represented by the first data.

9. A communication quality judging method, the method comprising the steps of:

obtaining a baseband signal representative of a sequence of multilevel symbols and judging the symbol  
5 represented by the baseband signal; and

judging communication quality of a transmission channel over which the baseband signal has been transmitted, based on content of the symbol judged in the symbol judging step,

10 wherein at least a portion of a bit string is distinguished as a protected portion, the bit string constituting data to be transmitted represented by the sequence of symbols, and at least a portion of the symbol that belongs to the sequence of symbols  
15 contains a bit belonging to the protected portion and a redundant bit having a predetermined value, and

wherein, in the communication quality judging step, the number of redundant bits having the predetermined value or the number of redundant bits  
20 missing the predetermined value is identified among the redundant bits contained in the symbol that contains a bit belonging to the protected portion, and the communication quality of the transmission channel is judged based on the identified result.

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10. A computer program causing a computer to execute the steps of:

obtaining a baseband signal representative of a sequence of multilevel symbols and judging the symbol  
30 represented by the baseband signal; and

judging communication quality of a transmission channel over which the baseband signal has been transmitted, based on content of the symbol judged in the symbol judging step,

5       wherein at least a portion of a bit string is distinguished as a protected portion, the bit string constituting data to be transmitted represented by the sequence of symbols, and at least a portion of the symbol that belongs to the sequence of symbols  
10 contains a bit belonging to the protected portion and a redundant bit having a predetermined value, and

      wherein, in the communication quality judging step, the number of redundant bits having the predetermined value or the number of redundant bits  
15 missing the predetermined value is identified among the redundant bits contained in the symbol that contains a bit belonging to the protected portion, and the communication quality of the transmission channel is judged based on the identified result.